
Monthly Snowmass Newsletter

November 2020

Current and future activities of Snowmass 2021 are available on the [Snowmass wiki page](#).

Feedback from the community during the Snowmass Community Planning meeting has been implemented in defining the structure of the Snowmass 2021 report. The revised version is available at [the Snowmass Report wiki page](#). Further feedback from the community is welcome.

The DPF Ethics Advisory Committee has been formed in November 2020. Its inaugural members are Kétévi Assamagan, Bill Barletta, Melissa Franklin, Maria Elena Monzani, Pavel Fileviez Perez, Amber Roepe (graduate student), Pekka Sinervo, Ruth Van de Water, and Jeremy Wolcott (postdoc), and they will serve on this Committee through October 2022. The Committee will start with a tremendous accomplishment made by the DPF Ethics Task Force [Kétévi Assamagan, Carla Bonifazi, Mu-Chun Chen, Prisca Cushman, Andre de Gouvea, Samuel Meehan, Sara Simon, Lauren Tompkins (chair), and Elizabeth Worcester] between April 2020 and October 2020, and expand their roles. More information is available at [the Snowmass Ethics wiki page](#).

Snowmass Early Career

Snowmass Early Career (SEC) has continued planning toward a long-term organization for early career members past the Snowmass process that includes building community, professional development, outreach, and diversity, equity, and inclusion. The Coffee Collisions program has begun matching the more than 200 members of the community that signed up for one-on-one networking. We are also holding a colloquium series focused on big questions in high energy physics (HEP). The series is open to all and is aimed at a general physics audience so that participants can learn more about different topics in HEP. More than 120 participants joined the first seminar on dark matter, and the next seminar will be on Friday, November 20 at 11 am CST and will focus on neutrino physics. These are just a small portion of what is happening within Snowmass Early Career (SEC), and we welcome any early career member, including those on non-academic tracks, to join us at any time! All SEC meetings and events are posted on [the indico](#).

Community Engagement Frontier

Following the Community Planning Meeting, the CEF topical groups have been contacting the LOIs authors, and suggesting white paper study groups by aggregating related LOIs under major white paper topics. For crosscutting topics, we are discussing the lead topical groups on the relevant white papers; some white papers may be managed at the frontier level if the topics require significant inputs from all the topical groups. When all the white paper topics are agreed, progress reports in relevant topical groups will be encouraged and monitored.

Theory Frontier

The TF is in the process of firming up its timeline and procedures for collecting white papers and preparing the topical group and frontier summaries. The current plans, which have been discussed at our recent all conveners meeting can be found [here](#). Preparations are also starting for the TF frontier meeting to be held March 17-19 at the KITP. As it looks increasingly more likely that it will be a fully remote meeting we

are considering adding an extra day, which would allow for a more relaxed program with plenty of discussions. TF07 is holding its own Town Hall meeting on Dec. 8. TF is also involved in jointly organizing a forum on muon colliders with EF and AF.

Energy Frontier

The EF has planned the next frontier workshop for May 10-14, 2021 to evaluate the status of studies for the final report and coordinate the expected contributed papers. In preparation for the May workshop we will have a call for summaries of contributed papers by the end of March, with deadline at the end of April. We are planning a preliminary draft of the EF Topical Group report by mid January, listing key questions, ongoing efforts, and topics expected as contributed papers. The TGs are focusing their activities towards this goal and we would like to use the opportunity of this Newsletter to highlight their work in the following months, starting with EF01 (Higgs Boson properties and couplings) and EF02 (Higgs Boson as a portal to new physics), while other TGs will follow in turn. EF01 and EF02 are focusing on updates since the European Strategy report. These include defining benchmark BSM points for studies of double Higgs production and possibilities for determining the couplings of the Higgs boson to light flavor fermions. Theoretical motivations for high energy colliders stemming from the Higgs sector are at the forefront of these TGs' activities. EF01 and EF02 are planning several joint meetings to discuss common topics and develop cross-TG projects. Finally, the Monte Carlo Task Force is completing its work and a Monte Carlo Production Team is being assembled. We have collected several nominations and plan to have a team in place before winter break.

Neutrino Frontier

The Neutrino Frontier [“LOI Matrix”](#) is now available: community members can check to make sure nothing has been missed. The next NF community event will be the first of approximately monthly “Contribution Workshops”, intended to help coordinate community white paper contributions. This will be December 17, 11 am-1 pm US Eastern. The NF topical groups are also organizing multiple workshops. Please keep an eye on the [NF calendar](#) for updates.

Rare Processes and Precision Measurements Frontier

The Rare Processes and Precision Frontier continues to hold regular topical working group meetings. All the topical groups are actively working with their communities to produce a series of white papers that address all the big ideas within the scope of their topical group. In addition members of the topical group on “Dark sector studies at high energies” are working in a “dark matter complementarity white paper” with other frontiers involved in the corresponding CPM parallel session. A series of workshops is planned to obtain community input on several important ideas. The RF calendar, available at [RF calendar](#) maintains up-to-date information on events relevant to the frontier. The concluding frontier-level workshop is planned for early June in Cincinnati. Finally, the structure and content of our final report is presently being discussed with the topical work conveners.

Cosmic Frontier

The Cosmic Frontier continues to hold regular topical working group meetings, after a series of productive CPM sessions. Working groups are gearing up for focused community meetings on different topics in the next few months with the goal of converging on a series of white papers. We expect to announce dates for them in the next few weeks via the wiki page and slack channels.

Accelerator Frontier

The Accelerator Frontier Topical Groups start organizing preparatory workshops and discussion meetings. AF1 (Accelerator Science, Education, Outreach), AF4 (Multi-TeV Colliders) and AF6 (Advanced Accelerator Concepts) would like to launch a joint workshop on the topic of Physics limits of Ultimate beams to explore 1) fundamental ultimate beams for various physics goals. In particular, for colliders, we would like to understand the required luminosity scaling with energy 2) Potential and feasibility of advanced concepts towards the ultimate physics limits, such as PeV beams yet low luminosity etc. This workshop will be arranged in a series 2-hour sessions every other week, starting **Dec. 3, 2020 from 15:00—17:00 (US Central Timezone)** via zoom. The topics of the first meeting will include discovery physics at electron-electron, and gamma-gamma Collider and Physics Potential with Low Luminosity Super High Energy Colliders, respectively. AF2 (Accelerators for Neutrinos) will have [a Town Hall meeting on Dec. 10, 2020](#). On Nov. 18, 2020, AF6 (Advanced Colliders) topical group starts a series of nine weekly half -a-day meetings, detail concept and physics discussions in the frame of [the Advanced Accelerator Concept Workshop \(AAC\)](#). Topical Group AF4 (Multi-TeV Colliders) have plans for three Workshops: i) on Multi-TeV MDI Workshop in Jan-Feb. 2021; ii) the 1st AF4 Workshop on hadron colliders in Jan.-Feb.; iii) and the 2nd AF4 Workshop on lepton colliders at part of the APS April'21 meeting. The AF is also actively involved in organization of the EF/AF/IF/TF “Muon Collider Forum”.

Computational Frontier

The Computational Frontier is taking the community feedback received at the CPM and is discussing the next steps to produce draft reports for the Community Summer Study (CSS) in July 2021. A plan was created and agreed that outlines these steps ([slides](#)). The plan tries to strike a balance between a bottom-up approach to maximize community engagement, and a top-down approach to make sure we deliver reports by the CSS. It sets deadlines for white paper drafts by March 2021 and white papers by May 2021. Topical group conveners will invite submissions from the community but also will reach out to solicit specific white papers. Meanwhile, the Computational Frontier is focussing on the findings from the LOIs by dedicated reports from the topical groups in our bi-weekly convener meeting, to make sure that all LOIs are considered and the authors integrated into the community process.

Instrumentation Frontier

The Instrumentation Frontier has started going through all the LOIs with our topical group conveners, to optimize the categorizations, understand the major trends, and prepare the white paper coordination. The MultiHEP workshop organized by our Cross Cutting topical group ([indico](#)) on November 9-12 was very successful. The next IF workshop will take place as the CPAD workshop on March 18-19 and 22, 2021.

Underground Facility and Infrastructure

The Underground Facility and Infrastructure group has continued to work with the other frontiers to follow the scientific opportunities the research community has identified for underground facilities. We participated in the MultiHEP workshop organized by the Community Engagement and Instrumentation Frontiers. The group continues to plan data collection surveys to query the research community and the underground facilities.